PACKETIZING DEVICES FOR
SECURE SCALABLE DATA STREAMING

G.G.

CROSS REFERENCE TO RELATED APPLICATION

5   This Application is a Continuation-in-Part of the co-pending, commonly-owned US Patent Application, Attorney Docket No. HP10014738, Serial No. _____, filed May 4, 2001, by S. J. Wee et al., and entitled "Encoding and Decoding Methods for Secure Scalable Streaming and Related Systems."

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TECHNICAL FIELD

    The present claimed invention relates to the field of streaming media data, particularly scalably encoded and progressively encrypted data. More specifically, the present claimed invention relates to the packetizing of such

15 data.

BACKGROUND ART

    Wireless streaming environments present many challenges for the system designer. For instance, clients can have different display, power,
20 communication, and computational capabilities. In addition, wireless communication links can have different maximum bandwidths, quality levels, and time-varying characteristics. A successful wireless video streaming system must be able to stream video to heterogeneous clients over time-varying wireless communication links, and this streaming must be performed
25 in a scalable and secure manner. Scalability is needed to enable streaming to a multitude of clients with different device capabilities. Security is particularly important in wireless networks to protect content from eavesdroppers.

30   In order to achieve scalability and efficiency in wireless streaming environments, one must be able to easily adapt or transcode the compressed video stream at intermediate network nodes. A transcoder takes a compressed video system as the input, then processes it to produce another compressed video stream as the output. Sample transcoding operations
35 include bitrate reduction, rate shaping, spatial downsampling, frame rate reduction, and changing compression formats. Network transcoding can improve system scalability and efficiency, for example, by adapting the spatial resolution of a video stream for a particular client's display capabilities or by dynamically adjusting the bitrate of a video stream to match a wireless
40 channel's time-varying characteristics.